

**IN THE CLAIMS:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (currently amended) A method of providing a fair exchange of messages to players of a distributed multi-player game taking place over a communications network, said method comprising the steps of:

sending update messages generated by a game server toward said players, each update message having a respective update message number associated therewith;

~~utilizing a multi-player game server that generates update messages to said players and receives~~ receiving action messages from said players, wherein each action message received from a player comprises an indication of an update message with which the action message is associated and a reaction time associated with the action message, said reaction time being a difference between ~~reception~~ a reception time of an update message ~~by~~ received for the player and ~~sending~~ a sending time of the action message ~~sent~~ by the player in response to the update message; and

computing, for each received action message, a respective delivery time for use in delivering the action message for processing by the game server, wherein an appropriate delivery time formula for an action message is utilized depending on whether action messages arrive in order and whether action messages arrive within their wait timeout periods;

queuing each received action message for use in delivering the action message for processing by the game server, wherein the queued action messages are arranged in an order of increasing update message number and are further arranged for each update message in an order of increasing reaction time; and

~~delivering said queued~~ action messages for processing by said game server ~~in an order of increasing reaction time without clock synchronization among said game server and said players.~~

2. (currently amended) The method of claim 1, wherein a game server proxy is operable in connection with said game server for ~~receiving and ordering of said action messages and forwarding said action messages to said game server~~ receiving said action messages, computing said delivery times for said action messages, queuing said action messages, and delivering said action message to said game server.
3. (currently amended) The method of claim 2, wherein each action message received at said game server proxy is delayed until ~~[[a]]~~ its computed delivery time is reached to ensure fair processing of the action messages sent from all players.
4. (currently amended) The method of claim 2, wherein, for each update message, said game server proxy associates ~~a message~~ the update message number with the update ~~messages sent to said players thereby~~ message for tracking an update message to which an action message responds.
5. (currently amended) The method of claim ~~2~~ wherein 2, wherein, for each update message, said game server proxy records a sending time for ~~[[an]]~~ said update message and associates said ~~update message with a sending time~~ with said update message.
6. (currently amended) The method of claim ~~[[2,]]~~ 1, wherein a player proxy is operable in connection with said game server for receiving said update messages from said game server and forwarding said update messages to said game players, and for receiving said action messages from said game players and forwarding said action messages to said game server.
7. (currently amended) The method of claim 6, wherein ~~[[a]]~~ said player proxy records ~~[[a]]~~ said reception time of an update message and uses said reception time to calculate said reaction time once said action message is sent by said player.
8. (currently amended) The method of claim 6, wherein, for each action message, said player proxy sends with said action message an update message number of an update

message with which said action message is associated, said a reaction time of said action message, and an action message number with of said action message.

9. (currently amended) The method of claim 6, wherein a message split mechanism is employed at said player proxy when multiple update messages are outstanding, wherein said message split mechanism associates an action message each action message associated with a window of update messages, wherein said message split mechanism calculates a respective reaction time being calculated for each action message with respect to each said for each outstanding update message in said window of update messages.

10. (currently amended) The method of claim 3, ~~wherein the claim 6,~~ wherein a wait timeout period for a player is calculated by some multiple of ~~the~~ an expected round trip time between said game server proxy and said player proxy.

11. (currently amended) The method of claim 1, wherein ~~an appropriate delivery time formula for an action message is utilized depending on whether a first delivery time formula is utilized when~~ action messages arrive in order and within their wait timeout periods, a second delivery time formula is utilized when action messages arrive out of order but within their wait timeout periods, or a third delivery time formula is utilized when action messages arrive outside their wait timeout periods periods.

12. (currently amended) The method of claim 2, wherein said game server proxy, when an action message is received, computes said delivery time for said action message and computes a position in a queue where said action message should be inserted ~~and a local delivery time at which said message is to be delivered to said game server.~~

13. (cancelled)

14. (currently amended) The method of claim ~~[[11]]~~ 1, wherein the delivery time of an action message ~~at a server proxy is calculated before being inserted to a delivery~~

queue is calculated before the action message is queued, and recalculated upon new action message arrival when action messages arrive in order or out of order but within their wait timeout periods.

15. (currently amended) The method of claim ~~[[11]]~~ 1, wherein each of the action messages has a respective action message number associated therewith; wherein, when action messages arrive at said game server proxy out of order, the action message numbers are used by a server proxy said game server proxy when messages arrive out of order to order action messages from a specific player and to determine whether all earlier action messages sent by said specific player have arrived.

16. (currently amended) The method of claim 11, wherein the delivery time of an action message at a server proxy is calculated before being inserted to the delivery queue is calculated before the action message is queued, and recalculated upon new action message arrival and action message delivery when action messages arrive outside of the wait timeout period.

17. (currently amended) The method of ~~claim 6 wherein~~, claim 6, wherein, when an action messages are sent by players, message is sent by a player for multiple update messages, a set of tuples are tagged onto each of the action messages by their proxies is tagged to the action message by the player proxy, wherein the set of tuples includes multiple reaction times associated with the respective multiple update messages for which the action message is sent each representing the reaction time from the time a set of update messages are received, wherein a window for which this information needs to be sent is indicated by the server proxy when it sends an update message.

18. (currently amended) The method of ~~claim 6, wherein~~ claim 1, wherein a window of update messages for which ~~reaction times~~ action messages are needed is indicated by the game server proxy to ~~the player proxies~~, a player proxy, the window being based on the determination by the game server proxy about when to stop accepting action messages corresponding to a particular update message.

19. (currently amended) A method of providing a fair exchange of messages to players of a distributed multi-player game taking place over a communications network, said multi-player game generating update messages to said players and receiving action messages from said players, said method comprising the steps of:

receiving ~~an update message~~ a plurality of update messages from a game server at a player proxy;

recording, for each of said update messages, a reception time of said update message at said player proxy; and

calculating ~~a reaction time~~ a plurality of reaction times for said respective update messages using said ~~reception time~~, ~~said reaction time transmitted by said player proxy in connection with an action message~~ respective reception times of said update messages; and

propagating, toward said game server, an action message including said reaction times for said respective update messages;

wherein said ~~reaction time is used~~ action message is adapted for use by said multi-player game to order responses by said players to thereby provide said fair exchange of messages without clock synchronization among said game server and said players.

20. (currently amended) The method of claim 19, wherein said ~~player proxy sends an update message number, reaction time and action message number with an action message~~ includes an action message number, wherein said action message includes a respective update message number for each of the reaction times associated with the respective update messages.

21. (cancelled)

22. (currently amended) A system for a distributed multi-player game, said system providing a fair exchange of messages to players of a distributed multi-player game taking place over a communications network, said system comprising:

a game server for ~~generating~~ sending update messages to said players and receiving action messages from said ~~players~~, players;

wherein each update message has a respective update message number associated therewith;

wherein each action message ~~received from a player at the game server~~ comprises a reaction time associated with the action message, said reaction time being a difference between ~~reception~~ a reception time of an update message by received for the player and ~~sending~~ a sending time of the action message sent by the player in response to the update message; and

a server proxy for delivering said action messages for processing by said game server in an order of increasing reaction ~~time without clock synchronization among said game server and said players~~ time, said server proxy adapted for:

receiving action messages from said players;

computing, for each received action message, a respective delivery time for use in delivering the action message for processing by the game server, wherein an appropriate delivery time formula for an action message is utilized depending on whether action messages arrive in order and whether action messages arrive within their wait timeout periods;

queuing each received action message for use in delivering the action message for processing by the game server, wherein the queued action messages are arranged in an order of increasing update message number and are further arranged for each update message in an order of increasing reaction time; and

delivering said queued action messages for processing by said game server.

23. (previously presented) The system of claim 22, further including a plurality of player proxies, each of said player proxies adapted to:

receive an update message from said game server at said player proxy;

record a reception time of said update message at said player proxy; and

calculate a reaction time using said reception time, said reaction time transmitted by said player proxy in connection with an action message.

24. (previously presented) The system of claim 23, wherein each of said player proxies is adapted to send an update message number, reaction time and action message number with an action message.

25. (previously presented) The system of claim 23, wherein said reaction time is used by said multi-player game at said server proxy to order responses by said players to thereby provide said fair exchange of messages.

26. (previously presented) The system of claim 22, wherein an appropriate delivery time formula for an action message is utilized at said server proxy depending on whether action messages arrive in order and within their wait timeout periods, action messages arrive out of order but within their wait timeout periods, or action messages arrive outside their wait timeout periods

27. (previously presented) The system of claim 22, wherein said server proxy, when an action message is received, computes a position in a queue where said action message should be inserted and a local delivery time at which said message is to be delivered to said game server.

28. (cancelled)

29. (cancelled)